Touch cont.d —
Taste 331.
Smelling 340

They viz: Hairs defend the surface of the body from ~~injurious~~ attrition in some parts, - impart warmth to it in others, - and in all - perhaps they serve to connect the ~~[illegible]~~ outward & inward Cuticle more intimately together.

6 The Cuticle and true Skin are not confined to the external parts of the body. ~~They [illegible]~~ They are extended into the Anus - Urethra - Vagina - Mouth - Pharynx - Nostrils - ~~[illegible]~~ and probably exists a little dissified in the stomach and bowels. — These we derive new and more extensive views of the sense of touch, which will enable us to explain many of the operations

of external impressions in producing diseases. ~~on the Kidneys but what~~ the Sympathy between the Skin & the Stomach ~~may~~ probably depends wholly upon the communication of impression from the former to the latter by the ~~contiguity~~ continuity of the Skin, without the intervention of the brain.[2] It is a striking instance of continuous Sympathy.

7 The ~~[illegible]~~ Sense of touch is greatly influenced by the ~~[illegible]~~ blood vessels which accompany the Nerves, and those external parts of the body which have most ~~[illegible]~~ blood vessels, possess the most sensibility. In support of the first proposition I shall read

to you an act of an experiment made by Dr Monroe, and communicated in his lectures. "I found (says the Dr) when I poured a solution of Opium under the skin of the thigh & leg of a living frog, not only the leg itself was soon affected, but the affection was communicated to the most distant part of the body by a sympathy of the nerves; but if previously to the application of the Opium, I cut away the femoral blood vessels, the effects of the Opium were not communicated to the distant parts, which proves that the arteries accompanying the nerves, or the arteries of the pia mater

of the nerves, have a great effect in fitting the nerves to receive, & com=
=municate impressions". — But this proposition will receive still grea=
=ter support from a fact mentioned by Mr Bell in his Surgery in his ~~[illegible]~~ account of the operation for the cure of aneurism. His words are "Immediately after the operation, the patient complains of an unusual numbness, & want of feeling in the whole member" and again in other place, he says "Im=
=mediately after this operation, the want of feeling in the part is very great, & in proportion as the

circulation in the other part becomes more considerable, the degree of feeling also augments. — If we could suppose the veins of the parts below to be always included in the ligature with the artery, the numbness which succeeds immediately to the operation might easily be accounted for; but I have known it happen, when I was certain that nothing but the artery was secured by the ligature; and besides, altho' the knot upon the veins would account for the immediate loss of sensibility which follows the operation, it wd. not in any degree serve to explain the return of feeling on the circulation

V To this I answer that the blood vessels are by no means found destitute of blood in persons who have ~~died of~~ died opplexine, but admitting this to be the case, may V turn over to left hand page.

being again restored!" To these striking facts I might add, that sensation in the skin is always proportioned to the greater or less fulness ~~or~~ or tension of the blood vessels which terminate in the surface of the body. ~~This I shall~~ prove hereafter in ~~my path~~ the pathology of the ~~Hypochondriac disease~~. There is only one seeming exception to this remark & that is the sense of touch is encreased by fasting, ~~but here~~ in which case there is said to be ~~the quantity~~ or ~~[illegible]~~ a diminution of the stimulus of blood. ~~[illegible]~~ on the ~~[illegible]~~ to be ~~[illegible]~~ tion

may there not be such

V, an accumulation of Excitability in the extremities of the nerves induced by the Abstraction of the Stimulus of Aliment and blood as to render them more easily moved by other Stimuli?

of the Stimulus of Aliment, and probably the reason why hence it increases the Sense of touch.

— That the sensibility of different external parts of the body is greatly influenced by the Quantity or force of the blood which accompanies the nerves, I prove from the peculiar sensibility of the breasts of females, & the genitals — and lips of both sexes in each of which there is a profusion of blood vessels. In the lips — the color of the blood is visible, — and every one knows how easily and plentifully it is effused from the most trifling wounds. —

8 It I said formerly that

a different set of nerves, are employed to convey the sensations of taste, smell, & perhaps of light & hearing to the brain, from those which serve the same organs for the common purpose of sensation. I suspect something of this kind takes place in such of the organs of touch as possess a peculiar or specific sensibility, such as the fingers, lips, and female breasts. It is certain that it takes place in the organs of generation. Of this Jno. Hunter mentions a remarkable proof. He tells us "that he knew a gentleman who had the glans

I shall hereafter mention several other instances of the translation of specific sensation.

In Hans Bosh name, who was deaf, the hearing was transferred from the ear to every part of the body.

Penis completely destroyed by a mortification almost as high as the Union of the Penis with the Pubis; & at the edge of the Old Skin, at the root of the penis where the nerves ter=
=minated, was the peculiar sensation of the glans penis, and the sensation of the glans itself, was now only com=
=mon sensation; "therefore the glands has different nerves, and those for common sensation may come thro' the body of the penis to the glans".

So much qnt. for the structure of the Organs of touch in general,

V and by the small ~~[illegible]~~ fibres which ~~[illegible]~~ are formed in ~~[illegible]~~ concentric layers upon the extremities of the fingers. An inequality of Surface is thus given to them, which increases their Sensibility.

I proceed

9th to remark that the extremities of the fingers possess the sense of distinguishing by contact the qualities of certain external objects in a much higher degree than any other parts of the body. [For this they are fitted by an uncommon smoothness of the skin in which the nerves terminate. ~~[illegible]~~ ~~[illegible]~~ These nerves ~~[illegible]~~ which terminate in the extremities of the fingers, are defended by the nails placed behind them. ~~[illegible]~~ [Perhaps the nails serve the further purpose of increasing sensation by a species of vibration] The nerves in the fingers are said to extend themselves ~~[illegible]~~ these certain papillæ in every ~~[illegible]~~ act of touch. but these papillæ have never been

V: 10: To encrease the sense of touch to the highest degree, it is wisely distributed by this ~~[illegible]~~ a thumb & four fingers on each hand, & the perceptions are most acute when the whole of them are employed in sensa-tion. This I ~~mentioned~~ shall mention as a reason for using four fingers when practicable in feeling the pulse.

demonstrated. Even Dr Haller who ~~[illegible]~~ mentions them very confidently [in his 423 & of his first lines] seems to infer their existence only from the analogy of the tongue where they have been seen, and where we shall say hereafter they are necessary to the ~~[illegible]~~ sense of taste. Malphigi is the only Anatomist who pretends to have seen the papillæ in the ends of the fingers. — V

11. That the sense of touch should be correct and perfect, it is necessary that the brain should be free from ~~[illegible]~~ compression, and that ~~no~~ there should be no obstruction on the nerves which connect the brain with the fingers, — that the circulation of the

That the impression of the body which touches should not be too violent, or too gentle — that it should be continued for some time — and

to common impressions. Thus D. Haller relates an instance of a man who could walk barefooted, on hot iron.

Next to the fingers, the lips possess a high sense of touch. This is obvious in Children who always put the things they handle to their lips in order to assist them in acquiring a knowledge of their properties. This sense of touch in the lips is lessened by disuse from our employing our fingers, exclusively in after life.

blood to the fingers should be easy & plentiful, that the temperature of the fingers should neither be hot, or cold beyond a certain degree. that the extremities of the fingers should neither be denudated nor covered with too thick a skin. The latter tends very much to lessen the sense of touch, as we see every day in labourers, more especially in Smiths who often burn, and thereby render callous the sensitive extremities of their fingers. Feats of the feet from Use sometimes become very sensible. I mentioned formerly the effects of habit on the sense of touch in common with the other senses. It is from habit it derives its superiority over the toes, in the fingers. — It acquires in this way, and more especially if it be deprived of the aid of other senses, an accuracy that goes almost beyond conception.

V ds^r le Cat ~~[illegible]~~ relates the history of a man who could distinguish every Card in a pack by the sense of touch.

Mr Boyle relates a story of a blind Organist who could distinguish colors & even black letters by his fingers. He always succeeded but after fasting a while, & when the weather was not very dry. — The readiness and acuteness with which Physicians distinguish the different States of the Pulse by means of this finger is the effect of habit, ~~and~~ can neither be imitated, nor comprehended by persons who are not accustomed to it. — To render the sense of touch as acute as possible in all cases, it is necessary that the brain should be preserved free from ~~[illegible]~~ the effects of impressions upon all the other Senses. — It will therefore be

V Its correctness is very much encreased by 1 putting the hands in warm water. 2 by previously rubbing it over a rough body. It acts by exciting ~~perpetually~~ the extremities of the nerves. 3 by motion ~~heat & cold~~ the heat & cold of water is felt most sensibly by moving hand backwards & forwards in it.

VI The accuracy of the sense of touch in distinguishing numbers is acquired by habit. Thus we know from experience that a marble when felt in the hand by two fingers - is single - but if we cross the fingers - thus - we have a ~~two~~ perception of two marbles.

VII We ~~[illegible]~~ to learn the thickness of bodies by it without the assistance of our eyes. but not the comparative thickness of one body more than another. This fact is taken notice by Mr Wiley in the Mdt Repository. But may not this be owing to a difference in the vibrations of the bodies felt, & may not the ears assist ~~by~~ hearing these vibrations? X Nor the mind originates in, or

most acute in darkness & in silence.

To the sense of touch we are indebted for all our ideas of the primary qualities of bodies. ~~From~~ the sense of touch being so early associated with the sense of seeing, we are apt to ascribe to the use of our eyes certain parts of knowledge which we acquire only by the sense of touch - such as our ideas of extension - figure - motion - hardness & softness. The eyes teach nothing of the properties of these objects without the sense of touch - and were it possible for the sense of touch to be abolished immediately after birth, we should never be able to distinguish hardness from softness - nor matters which were rough from such as were smooth.

its faculties are first excited, by the impressions on the sense of touch. They begin in the womb, from the meconium, and from external pressure. Abortions are often produced by them. It is in consequence of its being the most early sense in its operations (beginning on the 4th month) that it is the most perfect of any of them. The other senses do not open 'till the 9th month or till delivery & sometimes not 'till after it. The sense of touch is the source of instinct. It begins in utero. The superiority of this sense over those of seeing & hearing is evinced by the conduct of the apostle Thomas, who did not believe in the identity of his Saviours body after his resurrection although he had both seen & conversed with him. Until he had satisfied his sense of touch by thrusting his hand into his side.

90 to 332.

to 329 MN

Even the ~~blushing~~ rose would not be distinguished ~~to~~ from a flame of fire without the sense of touch. ~~[illegible]~~ This observation occurred with great force to Mr Molineaux the friend of Mr Locke, and ~~it was proposed by him to~~ the following Question was proposed ~~to~~ by him in consequence of it, to that great metaphysician". Suppose said ~~to~~ Mr Molineaux that a boy born blind should be taught by means of his fingers to distinguish accurately between a Cube & a ~~[illegible]~~ Ball made of the same kind of metal - and of the same weight, - and suppose this boy should afterwards suddenly receive his sight - and the cubes and ~~[illegible]~~ round pieces of metals should be placed before

his eyes, do you suppose he would be able to tell which was the Cube, and which was the Ball." Mr Locke acknowledged himself unable to answer this Question. You will certainly therefore excuse my Attempting it.

The Starting of the horse is owing probably to nothing but his ignorance of the properties of bodies from the want of the sense of touch. The timidity, or folly of many other animals may be traced to the same cause. In short the superiority of man ~~in intelligence and capacity~~ over the brute creation, is derived in many particulars from his possessing so exclusively the sense of touch. To this he owes his knowledge of not only of most of the mechanical & elegant Arts, but ~~in many~~ his ability to direct the pen and the type in the more important employments ~~[illegible]~~ of writing & printing. Helvetius considers it as a more distinguishing characteristic of man than Reason or Speech. go back

I have said that all our knowledge is acquired thro the medium of the senses. This being the case, it follows that the more acute, and extensive we render the senses in their capacity of receiving impressions the more we shall be able to increase our knowledge. For this purpose certain means have been employed which I shall mention in order after considering each of the senses. The sense of touch has been improved, 1 By discovering persons by feeling their faces or hands or the hair of their heads. 2 by distinguishing coins and the leaves of trees. 3 by finding out what is written in the palm of the hand with a finger, or a pencil. 4 by distinguishing the difference

V 12 by distinguishing the frequency of certain motions - particularly the pulse in a given time.

in the temperature of water and tasting it by a Thermometer. 5 by distinguishing substances of similar forms, but of different weights. 6 By distinguishing different kinds of wood, and Cloath. 7 By finding out the number of leaves and pages in a book, by feeling its size. 8 By distinguishing blank, written, and printed peices of paper from each other. 9 By distinguishing the different lengths of sticks of the same diameter & nearly of the same length. 10 by distinguishing different kinds of earths and fruits when placed in the hand. 11 By distinguishing the difference in Coins by their inscriptions.

Just before we exercise our fingers in any or in all the

ways that have been mentioned, the following means ~~have~~ will be found useful in imparting sensibility to the fingers.

1 ~~Plunging~~ Holding the hands for a few minutes in warm water.

2 Rubbing the fingers over a rough substance of any kind. This acts by exciting the extremities of the nerves.

~~3 By means of~~

The sense of touch is further very much increased by moving the fin=
=gers backwards and forward upon the body we wish to examine. also by removing the fingers for a while, in order to favour the accumulation of

~~only~~ to be acquired ~~only by a faithful~~ in the ways that have been mentioned, that cannot fail of adding very much to the safety and pleasure with which the different branches of medicine may be practised, but to the reputation & interest of the profession. That it is possible to add to the acuteness of sensation ~~both~~ in the fingers. I infer ~~it~~ not only from its having often attained, but from its being so often induced by diseases.-

sensorial power & lastly by concen-
-trating as much sensorial power
as possible in the fingers by closing
up the sources of sight by shutting
the eyes ~~and~~ of hearing by avoiding
conversation and noise of all kinds.

To many different Artists this
extension of the sense of touch is of great
consequence, but to none of them
more than to the physician, the Surgeon
and man-midwife. A ~~quick & correct~~
knowledge not only of the pulse, but of
the temperature of the Skin - of the nature
of tumors external & internal, of extra-
-neous matters which are removed beyond
the evidence of all the other senses, ~~are~~ is

Of Taste

This Sense is seated only in the tongue, by which I understand that body which is placed in the mouth, and which is capable of the greatest variety of motions.

The following peculiarities relative to this Sense, deserve our notice.

1 The tongue abounds with blood vessels, nerves & muscles & Lymphatics. It has an artery and vein and four muscles on each side of it, from which some Anato=mists have drawn an imaginary line thro' it. It would seem to be composed of two parts, provided with the same organs appended to each of them. Some saw it equally divided by a straight line, one side of which was red,

& the other white. It was in a palsy.
Perhaps this may be one reason why
cancers & other sores so seldom spread thro
the whole tongue. May it not be placed
by means of this structure upon a footing
with vision, hearing & smelling all of
are performed by a double sett of organs?
2 The sense of taste is seated ~~in the~~ only
only in the tip and edges of the tongue. This
has been demonstrated by many experi-
-ments made by Bellini & since repeated
by Dr Boerhaave. The palate & fauces it is
true distinguish some objects of taste. ~~The~~
Thus hellebore is perceived ~~upon~~ upon
the lips - Belladonna by the palate, and
woorm wood by the fauces, but these
should rather be considered as specific
sensations, than ~~objects of taste~~ as

belonging to the Sense of taste.

3 The Nerves which are the more immediate ~~organs~~ means of taste, project from the tongue in small papillæ which are of different shapes, and are furnished with small blood vessels which accompany them. The papillæ are much larger in some quadrupeds than in the human species. The more they project, the more acute is the sense of taste.

4 The tongue is supplied with nerves for the common purpose of sensation from the 8th and 9th pair, but the 5th pair is supposed to furnish that branch which forms the more immediate organ of taste.

5 The tongue abounds with blood vessels. In the neighbourhood of the papillæ

they furnish a liquor which is poured forth upon the tongue in order to favour the action of taste. This liquor is increased, and decreased in fluidness. It is sometimes thickened in its consistence, in which case the tongue is said to be fouled or pressed.

6 The sense of touch is more exquisite in the tips of the tongue than in the fingers - hence we distinguish the tound=ness of a egg by the warmth of one end of it when applied to the tongue. The fingers are unable to perceive this warmth. It is because the sense of touch is more acute in the tongue than in the fingers that Children apply the bodies that

following circumstances. 1st By the =

2dly By the confinement of the Object of taste exclusively to the tip of the tongue. In this way the purchasers of wine test its quality. If it happen to be swallowed or they eat or drink something to remove the impression of the wine upon the palate.

are put into their hands so generally to their mouths in order to ascertain their nature and qualities.

Sense of taste is influenced by the V

~~[illegible] differs in its [illegible]~~

different stages of life. It is most ex=
=quisite in infancy. It is for this reason
that sugar which possesses but a feeble
stimulus, is so grateful to young child=
=ren. In more advanced life & particular=
=ly in old age, the tongue becomes less
sensible to the stimulus of sweet sub=
=stances, and requires saline, or aro=
=matic substances to produce in it the
excitement of pleasure. ~~[illegible]~~

~~[illegible] in it [illegible]~~ By the

we lose our relish for a warm

weather. ~~[illegible]~~ on a

cold, or cool day, and for Coffee on a hot

v of their power of exciting taste by means of Cold. It is reported by a certain noble traveller, that all bodies lost their rapid qualities upon the cold Summit of the pike of Teneriffe Wine is said to have its most perfect relish when the Thermometer is about 55°.—

day. Acids are most grateful in ~~[illegible]~~ Summer ~~[illegible]~~, and ~~[illegible]~~ cordial Wines in Winter. Many rapid bodies are deprived by

4 By certain substances previously taken in the mouth. Bitter - sweet & acid aliments and drinks, impart a portion of their tastes to all the morsels that are taken immediately after them.

5 by certain Odors which pass thro the nose, and blend themselves with the Objects of taste.

6 By certain diseases in the sense of ~~[illegible]~~ taste, also in the nose & the brain. The tongue when denudated of its Skin, or when inflamed, or otherways diseased, imparts the most ennervous sensations to the brain. a Catarrh which

V Some philosophists add ~~to~~, ~~an~~ certain insipid substances to the number of the Objects of tastes, but they act <u>negatively</u> only, and therefore should no more be included among the Objects of taste than the negative sensation which arises from the Absence of light, should be considered as one of the impressions of light.

obstructs the nose, or inflames the ~~pituit~~ Schneidrian
Membrane impairs or destroys the
sense of taste. A disease in the brain
has the same effect. To return
8. The Objects of taste are such substances
as are sweet, sour, rough, bitter, salive,
vinous, spiritous, acrid aromatic &
putrid substances. Dr Gren supposes them
to be <u>sixteen</u> in number. He probably
includes in them such impressions as
are made upon the lips, and fauces. —
There is good reason to believe they
are like the primary Colors but <u>seven</u>
in number, and that the immense
Variety of them are compounds of
those seven. There exists probably
among them the same harmony &
discord that takes place among Colors.

V ~~In this work~~ the

as green is the most durably agreeable color to the eye from its moderate stimulus, so there are certain objects of taste that are constantly agreeable from their imparting the same intermediate and moderate degree of impression to the tongue. These are bread, milk, simple meats, and mild vegetables which like the verdure of our fields always please, but never satiate, while high seasoned food like the glaring red, and vapid aliment like the feeble violet, to the eye) soon palls the taste, or have it in a languid state, alike unfavorable to health & pleasure.

¶ All tastes are excited by the sapid body being dissolved in the liquor which is secreted in the tongue. A dry tongue can relish nothing. In the solution of

sapid bodies in the mouth something like agitation takes place, for the tongue after receiving the sapid body throws it against the teeth, and roof of the mouth by which means the solution is both expedited and rendered more perfect. To the remark of the solution of a sapid body in the tongue before a taste can be perceived from it, there is one exception. The metals are insoluble in the liquor of the tongue, and yet they certainly impart a sense of taste to it.

10 The perfection of the sense of taste is much influenced by habit. Persons who have long been accustomed to drink Madeira wine can tell at once whether it be has been taken from bottles, or drawn from a Cask. They can even distinguish

11. The sensations imparted to the tongue has some Variety in them. They are generally constant, as if — ~~[illegible]~~ they arose from the continued action of one impression; But some Substances create something like an Undulation in the ~~[illegible]~~ nerves of the tongue, that is the Sensation of taste increases or lessens, or in Other words <u>comes & goes</u>. —

the most trifling Adulterations of it by a mixture of Sherry or Lisbon, or of both. There was some years ago an old Madeira Merchant in this City who could tell by the taste, the Wine of every parish in the Island of Madeira. V

12 The Sense of taste, like that of touch is not an independant Sense. It is intimately connected with the perfect exercise of the Sense of Smelling, - hence the reason why it is so easily affected by a Cold, or by a Disease in the Nose. Even the eye aids the Sense of taste. This is evident from our not being able ~~to~~ in some instances to distinguish the difference between several kinds of meat with our eyes shut.

13 The Sense of ~~touch~~ taste, like the

Sensation peculiar to the glans penis formerly mentioned, may be transferred. Lepicum relates the case of a girl born without a tongue who had a high sense of taste diffused throughout her mouth, and a Surgeon in Saumur mentions a similar case in a boy who lost his tongue in the small pox. This sense in some animals is supposed to reside in the stomach. It is absent in others. In the anteater and in several other ani=
=mals, the tongue is supposed only to assist in conveying food into the sto=
=mach. —

14 The tongue has an intimate con=
=nection with every part of the System, and impressions made upon it have

an extensive influence in medicine: a few drops of Lavender upon a lump of loaf sugar when dissolved upon the tongue ~~has revived the body from~~ has cured fainting, and infused Vigor into every part of the body. From this Sympathy of the nerves of the tongue, with the whole body, it is obvious cordial medicines intended to produce a general effect, should always be given in such a form as to diffuse themselves over the mouth in order that the tongue may feel their impression as long as possible.

15 The Sense of ~~smell~~ taste serves to direct us in the Choice and preparation of whole=some aliments, for while this sense retains its healthy & simple state,

Such articles of food as are agreeable to the taste are with a few exceptions, generally wholsome & nutritious. It is much perverted in civilized Society by intemperance, ardent Spirits and tobacco, for which reason Savages, & even the Beasts ~~of the field will frequently~~ derive more pleasure from its gratification than man in his most refined and cultivated state. —

Having enumerated the principal and the most interesting facts which belong to the Sense of taste, we proceed next to inquire into the cause of the variety of tastes, which are imparted to the tongue by the different Objects

of taste. Baker & some other philoso=
=phers have supposed that all sapid
bodies owe their sapor to their being
salts, and that each of these salts having
a figure peculiar to itself, imparts a
peculiar and specific impression to the
tongue; But this opinion is founded
upon erroneous premises, for all sa=
=pid bodies are not of a saline nature, and
many saline bodies which have exactly
the same form, such particularly as
the salts of Sorrel and Sugar, impart a
very different sensations to the tongue.
the precious stones which have the
same ~~for~~ angular forms impart no
taste at all to it. ——

Dr Reid has proposed another solution

of this Question in his ingenious eſsay
upon the Mind. He supposes that
every sapid body enters into mixture
with the liquid upon the tongue, and
that the Variety of tastes is occasioned
by a similar Variety of new Compounds
formed by these mixtures, each of which
gives a new & specific impreſsion to
the nerves of the tongue. This explanation
however ingenious, is hypothetical, and is incapable of demonstration.

~~[illegible]~~ The following explanation
of the Cause of the Variety of tastes ~~bitter~~
will I hope be more satisfactory. ~~[illegible]~~
of ~~the tongue~~
~~[illegible] is appropriated to~~ its
~~[illegible] impreſsions only, and the~~

as every thought as I hope to prove to you hereafter depends upon a different motion in the brain, so every different sensation of taste appears to depend upon a different motion in the nerves of the tongue induced by the ~~upon~~ sapid body which acts upon it. Thus Sugar excites by a peculiar & specific motion in the nerves of the tongue, the sensation of sweet - acids ~~and~~ and bitters in like manner excite the sensations of sour and bitter. That this is the case I infer, not only from the manner in which hearing, pleasure and pain are produced, but from many striking facts which occur in diseases, for to diseases we are indebted for our knowledge of many important truths in Physiology. The facts I allude to are as follow. Dr Hartley tells us

V I once attended a lady in an intestinal disease in whom several of her drinks and particularly port wine imparted the taste of Sugar.

that bitters, and Acids applied to a fungus on the brain, produced the sensations of bitter, and sour upon the tongue. This appears to have been occasioned by exactly the same motions being excited in the nerves of the tongue from their sympathy with the fungus in the brain which when directly stimulated by bitters and Acids produce those sensations in the tongue. Again Dr Davies informed me that he had a patient in the Lunatic of 1807 in whom every thing she applied to her tongue produced the sensation of bitter. This appears to have been occasioned by those substances exciting in the tongue those motions which ordinarily produce the sensations of bitter.

of them is excited by those motions in the tongue which uniformly exist or pro= =duce it. We have further from the solution of the cause of the variety of tastes that has been given, the cause of the longings of women for particular kinds of aliment during their pregnancy. These longings are generally accompanied with nausea, or what is called breeding sickness, which (from the habitual associations of the stomach & tongue in its pleasures) excite those motions in the tongue that were formerly associated with the taste of certain aliments, — and as the aliments thus tasted are generally of a pleasant nature, they become objects of vehement desire, or in other words of what are called longings. We shall see hereafter, that all the senses, & even the brain are upon the same footing in producing their specific effects. = over left hand

I have heard in like manner of the sensation of Oil being excited by every kind of rapid body that was applied to the tongue. The nerves of the tongue in all these cases are in a diseased state, and refuse to act in their ordinary manner from the impressions that are made upon them. This solution of the cause of the variety of tastes accounts for the many false sensations to which this sense is exposed in different people & particularly in sickness. It accounts for mercury imparting the taste of copper to the tongue in the beginning of a salivation. It explains the reason likewise why in our dreams we enjoy the taste of the most agreeable aliments. ~~The~~ The sensation

= I am aware that a different individual nerve is appropriated by some Physiologists to each individual sensation. Should this be the case, it will not invalidate the theory I have delivered. The ~~fact~~ ~~is the sensation with depend in this~~ want of concord between the ~~case upon~~ the ~~[illegible]~~ sensation and the impression made ~~[illegible]~~ upon the tongue will depend in this case upon a difference in the nerve stimulated, instead of different motions in the same nerve or set of nerves:

go to 21.

The sense

The sense of taste like that of touch is capable of extension & improvement. The means which have been found useful for this purpose are

1 Removing all those diseases from the tongue, and from parts which sympathize with it which pervert or impair healthy actions. A disordered stomach is very apt to vitiate the taste, for which reason our remedies should always be in the first instance be applied to the stomach.

2 A moderate degree of depletion. The Cooks in Paris Mr Pinkerton tells us in his recollections of that city,

take physic regularly & constantly to prevent anetness & coarseness of taste. We had a physician some years ago, who always took a purge

in whom the sense of taste is absent from the tongue, it may be seated in the stomach, or some other part of the body.

The sense of taste like that of touch may be extended and improved, by the following means.

1 Removing all those diseases from the stomach tongue and nose which I said formerly pervert or impair it.

2 By a moderate degree of depletion. The Cooks in Paris and Pinkerton tells us in his recollections of that city take physic regularly and constantly in order to preserve acuteness & correctness of taste.

I have had a physician in this city some years ago who always took a purge

~~man that reason or speak~~

✓ 4 By closing the eyes and obliging persons to detect different sapid substances applied to the tongue.

the day before he went to a feast proba-
-bly for the purpose of increasing his
relish for his food. Fasting has the
same effect.

3 By variety in aliments
and drinks. The relish for wine when
it begins to flag upon the taste, may
be revived at any time by eating a
little cheese. In this way likewise retailers of
wine a certain the
correctness of their taste, so as to be able
to purchase by tryal large quantities
of wine at a time.

The improvement of the sense
of taste is calculated not only to add to
the pleasures of the table, but it may
be rendered useful in various arts, &c

even in medicine. The ~~the~~ nature of diseases is sometimes found out by the taste of certain Animal fluids, and the Quality and found state of many medicines can only be discovered by means of this sense. The more acute it can be rendered by Art, the more benefit we shall derive from it when employed in either of the ways that has been mentioned.

Lect: 13

Of Smelling

The Sense of Smelling is performed by means of a soft pulpy membrane full of pores and small cupels which is extended over the nostrils & over the Ossa Spongiosa - the Septum of the nose and the ethmoid bone. This membrane is called the pituitary & Schneiderian membrane.

I am aware here Gent: that I differ from Dr Haller and several other Physiologists in confining the Sense of Smell only to the parts which have been mentioned. ~~Perhaps it might be confined to the Ossa Spongiosa~~. Its extent to the Septum & Ethmoid bone seems to have been

intended only to supply the defect ~~of~~ or diseases of the Ossa Spongiosa — for on these bones the impressions which excite the sensation of Smell, are chiefly made. — My reasons for excluding the Sphenoid & the Ethmoid the frontal, and maxillary sinuses from having any share in producing the sensation of smell are as follow.

1 If these sinuses were necessary to the sense of smelling, those animals which smell most acutely, would have them proportionably large — But this is not the case. The only difference in such animals is in the size of the Ossa Spongiosa and not in the frontal sinus. The larger

size of the frontal sinus is intended to ~~extend the~~ defend the heads of Animals, and to ~~[illegible]~~ afford a more extensive surface for the origin & insertion of mus=cles. —

2 In Animals of the same size which differ in their acuteness of Smelling, there is no difference in the size of the frontal sinuses, but a <u>material</u> diffe=rence in the size of the Ossa Spongiosa.

3 All the Sinuses have a winding ope=ning which is turned away from the nostrils, and which ~~[illegible]~~ is directed ~~[illegible]~~ into the throat.

4 The air instead of entering these sinuses in smelling, appears rather to be discharged

from them in the act of smelling.

5 Pungent substances do not give pain when applied to the membrane which lines the internal surface of these sinuses. —

I exclude the sinuses further from containing and passing forth a fluid ~~which~~ whose use is said to be to ~~moisten~~ preserve a constant ~~moisture~~ moisture in the mucus of the nose – and that for the following reasons. —

1 We observe the greatest quantity of mucus ~~flows~~ discharged from the nose in Children before the sinuses are formed

2 In no position of the head, do

they never discharge any ~~[illegible]~~ moisture from the nose.—

3 Did these finnipes contain a fluid in them, it would unfit them for performing the only use we formerly ascribed to them which, was to en=
=crease those tremors or vibrations on which I formerly said the Voice depended. —

The mucus which lines the inside of the nose, appears to be ~~[illegible]~~ poured out from ~~[illegible]~~ Arteries, and ~~[illegible]~~ deposited in Crypta or cells or in cylindrical ducts in the nose. ~~[illegible]~~ a due degree of tenuity in it is kept up by the constant effusi=
=on of tears from the the Lacrymal ~~[illegible]~~ Sac. This moisture in the nose is indispensable

v The heat of the Nose in middle life dispipates its superfluous moisture gradually, but ~~[illegible]~~ - it is discharged in old people in large drops - hence poor old men who are not provided with handkerchiefs generally introduce themselves to you by rubbing their hands across their nose.

The sense of smelling is more universal, than that of taste, from its being more necessary ~~[illegible]~~ in procuring food. It begins in early life. ~~[illegible]~~ New born infants appear to be led by this sense to desire their mothers milk, for they are ~~[illegible]~~ imperfectly fortune-time after birth. The nerves which form the organ of smell are larger than those which form the organ of taste.

to the Act of smelling. — V

The internal part of the nose abounds with blood vessels which increase the sensibility of the nerves of the nose. These vessels are not only numerous, but slender, — hence the facility with which they are ruptured from accidents & diseases, more especially in early life. — H

To the performance of smelling, the inspiration of Air is absolutely necessary. No smell is perceived by an Animal in whom the aspera Arteria has been cut, nor in expiration, or a suspension of inspiration and expiration. — The force with which the Air is inspired by the nose tends very much to promote the effect of impressions on the organs of smell. — The shorter the

The sense of Smelling is further rendered more acute by shutting the mouth. & for the same reason - none of the effluvia are wasted in the Mouth.

[Numerous as the objects of this sense are they have been divided by Linnaeus into 7 classes They are 1. the Ambrosiae - as the Rose & musk. 2 The fragrant as the Lilly, & Jessamin. 3 Aromatic as the Spices. 4 Alliaceous as Garlic Onions, & asafoetida. 5 Fetid - as Valerian 6 Virous - as the poppy, Opium. & 7 & nauseous as the gourd - & bryony.]

The powers of Odors are much more extensive than has been supposed. They arise even from metals & stones. In order to

acts of inspiration, - the latter for this purpose, - hence when we wish to smell most acutely, we imitate the grey hound by a number of short & quick acts of inspiration. - The whole of the effluvia of the odorous body is moreover concentrated by these means in the nose, and none of them is conveyed or wasted in to the lungs. - + V

~~The variety in the perception of odors like the variety in the objects of taste was supposed by Dr Reid to depend upon certain mixtures formed by the union of the odorous body with the mucus of the nose.~~ VA

~~# This sense tho' more independant than that of taste is not altogether so - It is tributary in a small degree to the eyes. - It is~~

produce odors, it is necessary the matters that create them should be a gaseous or volatile state. They are converted into this state by heat, friction (as metals & stones) fermentation, solution and mixture. —

The matter which acts upon the nose is often so subtilized, as to escape observation, and almost to exceed conception. A single drop of the oil of a damask rose will often impart such a smell to a pint of sweet oil, as to render the whole mass fragrant for several years. A grain of musk has been known to perfume a large room for twenty years. The Urine of the skunk often pervades whole townships in the Country. Putrid odors often cleave to woolen garments for several days. This I once experienced after viewing

This sense, tho' more independant, than that of taste, is not wholly so. It is tri=
=butary in a small degree to the eyes.
It is ~~[illegible]~~ much aided by sneezing
which discharges inspissated mucus,
invigorates the circulation in the nose,
and rouses ~~[illegible]~~ its nerves from an occa=
=sional torpor. Now sneezing is often
promoted by a sudden glare of light,
and hence we often find it induced by
it, particularly in ~~the~~ morning, a
time when sneezing is most necessary.
to perform all the uses that have been
ascribed to it. But there is another
proof of the connection between the
sense of smelling, and the organ of

visions and that is strong odors force tears from the eyes.

I shall now mention some peculiarities. the sense of smelling.

1. It affords some assistance to the sense of taste in deciding upon the nature & qualities of many aliments. It is often employed in judging of the quality of wines. The Madeira merchant whose I before mentioned, could distinguish the wine of every parish in the Island only by its smell. It is from its subservieney to the taste that we lose our relish for many articles of our food by that form of a cold which is called Coryza. —

2 It has sometimes been the means of

V 3 It is intimately connected with the production of diseases. The bowels have sometimes been moved by the smell of Colocynthida, the stomach by the smell of putrid matter & the lungs by the ~~smoke~~ smell of tobacco. But this is not all - the brain - the nerves - the muscles, and even the blood vessels have all been thrown into commotions by effluvia acting upon the ~~sense~~ sense of smelling. ~~As~~ As a proof of this, I shall hereafter mention that the deleterious effects of some of these effluvia are prevented by closing the nostrils. ——

supporting life. Hunger has often been suspended by it. Lord Bacon mentions an instance of a nobleman who lived five days wholly upon the ~~[illegible]~~ smell of Garlic and Onions. V

4 It has an intimate Connection with medicine. Many remedies are applied to the whole body thro' the medium of this sense. These are chiefly volatile, aromatic and fœtid Substances. —

5 It is connected with the intellectual powers of the mind particularly the imagination. This is so obvious that Rousseau has pronounced the sense of Smelling to be the sensitive organ of that faculty of the mind. It is a fact, that the aspirations of ideas are

✓ It even effects the passions. Dyers are revived ~~by cochineal~~ in dying <u>red</u>, the color of which is made by the solution of tin in nitric acid ~~with~~ a mixture of cochineal, & ~~by~~ they are depressed by ~~woad~~ dying <u>blue</u> of which Indigo is the principal ingredient.

more prompt & more numerous there the medium of this sense than any other. — Dr Cullen: Daughter ess miller.

Certain odors have a sensible influence upon morals. Those passions must be unnecessarily turbulent, ~~that~~ are not composed by a morning walk in a flower garden in the month of June. On the contrary, there are odors which are said to have an unfriendly influence upon the moral faculty. The extraordinary wickedness of the people who live in the neighbourhood of Mount Vesuvius has been ascribed to their being constantly exposed to the smell of Sulphur which is emitted by that mountain.

7 The long application of odors of any kind to the nose is apt to bring on head ach, coma, sickness & fatigue. The effects of the fetid odor of the earth or Pegu oil in the kingdom of Ava in inducing fatigue are such, that the men who are employed in extracting it from the earth, demand higher wages than other ~~kind of~~ laborers.

8 It is a happy circumstance that our smelling is connected with the constant involuntary act of inspiration. The nose by this means becomes a centinel to the whole system, and thereby often delivers us from the consequences of inhaling ~~[illegible]~~ sickening or deadly odors.

The books of Moses have been called by a great military Officer "the best orderly book in the World". Among other proofs of the truth of this encomium, I shall mention a striking One, and that is the Care which the Jews took to burn the fat, and the Offals of the Animals they offered in Sacrifices, without their Camps thereby to prevent their being annoyed by their offensive Smell, or affected by malignant fumes by their passing into a State of putrefaction above ground, & near to their encampments.

9 Persons who live in the Country have a more acute sense of Smell than persons who live in towns. Niebuhr tells us, that

the Arabians possess it in so high degree that they can find out their Camels when they escape from them to the distance of four or five miles. The Brahmins cannot bear to stand near an European soon after he arrives from sea upon the acc.t of his perspiration being so much affected by his animal diet during his voyage, or by his pores in consequence of their being absorbed by the Lymphatics and thus conveyed out of the system by the pores instead of by the bowels which generally become costive from fasting.

The sense of smelling in the Brahmins is rendered thus acute by their living wholly upon vegetables. We read of persons who could distinguish their acquaintances from strangers by the smell of their perspiration, and of one man who

could by the same means distinguish
his wife from any other woman.
[Le Cat goes further & mentions the case
of a monk in Prague who could ~~distin~~ perceive
by this sense the perspiration of a mar=
=ried woman from that of a Virgin] a
french Gentleman who visited this city in
the year 1798 requested Dr Pascalis to con=
=duct him to see some of his yellow fever
patients. Such was the acuteness of this
Gentlemans smell, that he could tell
at the door of every house he entered,
whether any person had the fever in
it. There is a smell peculiar to this fever
which may be distinguished upon ap=
=proaching the bed of a person confined
with it. It is perceptible likewise in the blood.
It is remarkable the sense of smelling

humours ~~[illegible]~~ exquisitely acute ~~in~~
About the Crises of several diseases whether
they end in life or Death. It is more
acute in certain animals than in man
for the necessary purpose in many of them
defending themselves from their enemies ~~[illegible]~~ or obtaining ~~food~~
~~[illegible]~~ their food
The Dog is ~~[illegible]~~ pre-eminent among ~~[illegible]~~ the Quadrupeds
for the acuteness of this sense. He has
lately given a new proof of it in Eng.
by distinguishing a living from a
dead Sheep under the snow. He howled
only over the Dead Sheep, but ~~[illegible]~~ scratched over
the living Ones, as if to save them. The
hog possesses this sense in a very acute
state likewise. To this he is indebted
for discovering under the earth, those
roots upon which he feeds. It is probable
he owes his wonderful Ability to find

his way home, when lost, to the acuteness & perfection of this sense. The deer often escapes his pursuers by the acuteness of his sense of smelling — hence our Indians when they hunt him, never follow him with the wind. as soon as they discover that they are behind him by the recovery of his tracks, they alter their course, and either get upon his flank, or in his front. The Elephant likewise owes much to this sense. His whole proboscis is a production of Olfactory nerves, and it is by means of this instrument which he moves at his pleasure, that he supplies the want of flexible joints, and of eyes which command as

extensive view of the surface of the earth, in procuring his food. This probopis is so exquisitely sensible of odors, that Dr Boerhaave says he once saw an Elephant seize a peice of money from among a thousand peices, which had nothing else to distinguish it, but the peculiar smell it derived from paping thro his masters hand. The size & extent of the snout and of the Opa Spongiosa in the hound, serves the same purpose as the probopis in the Elephant in encreasing the acuteness and extent of its sense of smelling. I formerly mentioned the extent of this sense in birds that are allured to thier food by the putrid effluvia emitted by it in a state of putrefaction.

But the acuteness of smell in certain animals serves another purpose besides those which have been mentioned. It brings the sexes together at certain seasons of the year in order to propagate their species. It is remarkable the acute degree of this sense is never wasted upon any animal that does not require it ~~[illegible]~~ for some one or more of the purposes that have been mentioned.

10 Many odors which are offensive in their natural or concentrated state are very grateful when they are diluted. ~~[illegible]~~ Thus a little musk is agreeable in hair powder & perfumery, and a spice of asafoetida, or garlic in a beefstake.

the Carcase of a putrifying whale in the neighbourhood of Edin^r. the great extent of putrid Odors is still more evinced by certain birds being allured many hundred miles by them when emitted from Cassion.* go below I shall apply these facts when I come to treat of the nature and extent of those exhalations which produce bilious fevers. ~~the~~ none of these fine particles of matter which thus affect the nose have ever been discovered by the miscroscope, or by any other instrument so as to be obvious to ~~any other~~ the Sense of Vision. go to 349

* The Odor of the Sweetscented Shrub of N Carolina was perceived 120 miles from the Shore of that State by the Crew of a Ships that arrived in Philad^a from Canton in 1811 and the Odor from the flowers on the banks of the Rio Janeiro was so intense as to destroy the smell of tar in a Ships 12 miles off.